



RESEARCH, DEVELOPMENT and TECHNOLOGY TRANSFER QUARTERLY PROGRESS REPORT (QPR)

Wisconsin Department of Transportation (WisDOT)
DT1241 5/2014

INSTRUCTIONS:

Research principal investigators and/or project managers should complete a quarterly progress report (QPR) for each calendar quarter during which the projects are active.

| | | | |
|--|---|---|--|
| WisDOT Research Program Category <input type="checkbox"/> Policy Research <input checked="" type="checkbox"/> Wisconsin Highway Research Program <input type="checkbox"/> Other: _____ | | Report Period (enter year and check which quarter) Year: <u>2014</u> <input type="checkbox"/> Quarter 1 (Jan 1 – Mar 31) <input checked="" type="checkbox"/> Quarter 3 (Jul 1 – Sep 30) <input type="checkbox"/> Quarter 2 (Apr 1 – Jun 30) <input type="checkbox"/> Quarter 4 (Oct 1 – Dec 31) | |
| Project Title Performance and Design of Bridge Approach Panels in Wisconsin | | WisDOT Project ID 0092-14-04 | |
| Principal Investigator Name Brent Phares | Project Oversight Committee Chair Name Barry Paye | Project Start Date (m/d/yyyy) 8/13/2013 | |
| (Area Code) Telephone Number 515-294-5879 | (Area Code) Telephone Number 608-246-7945 | Original End Date (m/d/yyyy) 2/12/2015 | |
| Email Address bphares@iastate.edu | Email Address Barry.Paye@dot.wi.gov | Current End Date (m/d/yyyy) 2/12/2015 | |

Project Schedule Status (check one)

☐ On Schedule ☐ On Revised Schedule ☐ Ahead of Schedule ☒ Behind Schedule

Project Budget Status

| Total Project Budget | Expenditures Current Quarter | Total Expenditures | % Funds Expended | % Work Completed |
|----------------------|------------------------------|--------------------|------------------|------------------|
| \$79,974.00 | \$6,874.50 | \$9,245.78 | 12% | 15% |

Project Description

It is widely recognized that approach slabs/panels play a critical role in the highway system. These panels must provide a smooth transition from mainline pavements to bridges. Beyond being responsible for the majority of roughness typically associated with bridges, these panels must be able to effectively accommodate thermal expansion and contraction of both the bridge and the mainline pavement. Improperly designed/constructed approach panels tend to lead to the formation of a bump at the end of the bridge. The bump is not generally a significant safety problem; rather it can be an expensive maintenance issue. It is very common to attach the approach slab to the bridge via a reinforcing bar extending from the paving notch. By attaching the approach slab to the bridge, one is able to move an expansion joint away from the critical area at the abutment; this promotes drainage of roadway water away from the bridge area. However, one detail that is critical to the long-term, effective performance of approach slabs is that they must allow for free and full expansion and contraction of the surrounding elements. In general, this is accomplished by detailing one or more expansion joints.

The objectives of this work are:

- Review and analyze current approach slab performance
- Review and analyze the national state of the practice with respect to approach slabs
- Determine what other currently adopted approach slab designs may be applicable to Wisconsin
- Determine if there is a problem with current approach slab performance and, if so, will new designs will improve performance
- Determine if three expansion joints are need to provide thermal expansion/contraction relief or if one joint will be sufficient
- Improve the constructability and performance of approach slabs

Progress This Quarter *(includes meetings, work plan status, contract status, significant progress, etc.)*

Site visits to 12 bridges along the US 41 corridor from Oshkosh to Green Bay were completed. Documentation of the approach slabs was completed which included photographs and videos for all bridges. Some were selected for live load testing to capture behavior under ambient traffic conditions. Soil samples were retrieved from the US 41 Project office to complete lab testing. Analysis and observation of the data and other documentation is ongoing.

Anticipated Work Next Quarter

The primary effort in the next quarter will be continued analysis and reduction of data and the preparation of the final report. Although we are slightly behind schedule due to the timing of the field investigation, we are hopeful that concentrated effort over the coming months can get the project back on schedule.

Circumstances Affecting Project or Budget

There was a slight delay in scheduling and conducting the field visits. This has put us slightly behind schedule. However, we will do our best to get back on schedule within the time allotted.

Attach / Insert Gantt Chart and Other Project Documentation

| | Month | | | | | | | | | | | | | | | | | |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Aug-13 | Sep-13 | Oct-13 | Nov-13 | Dec-13 | Jan-14 | Feb-14 | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 |
| Task 1.1 | | | | | | | | | | | | | | | | | | |
| Task 1.2 | | | | | | | | | | | | | | | | | | |
| Task 1.3 | | | | | | | | | | | | | | | | | | |
| Task 2 | | | | | | | | | | | | | | | | | | |
| TOC Review, revision, and final submission | | | | | | | | | | | | | | | | | | |

(*enter text)

| For WisDOT Use Only | |
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| Staff Receiving QPR J. Walejko | Date Received (m/d/yyyy) 10/7/2014 |
| Staff Approving QPR | Date Approved (m/d/yyyy) |